

WRAP OGWG: O&G EI

PHASE 2 STATUS UPDATE

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June 11, 2019

OUTLINE

Baseline Inventory

01

**Forecast Scenarios
(OTB & OTW)**

02

**Forecast Scenarios
(Additional
Reasonable Controls)**

03

**Status, Schedule,
Looking Forward**

04

01 BASELINE INVENTORY - BASIS

- Started from WRAP OGWG v1, integrated survey data to develop WRAP OGWG v2
- Several rounds of previous outreach on inventory inputs
 - 8/14/2018
 - [2014 base case \(v1\) emission inventory spreadsheet](#)
 - [2014 oil and gas activity spreadsheet](#)
 - 10/9/2018
 - [WRAP OGWG Survey Data Collection Synthesis Memo, Ramboll](#)
 - 5/22/2018
 - Survey results memorandum (via email)
- Made inventory updates per agency and operator survey responses
 - Note: Tank controls capture efficiency: Currently status quo (100% capture efficiency except for certain Colorado sources)

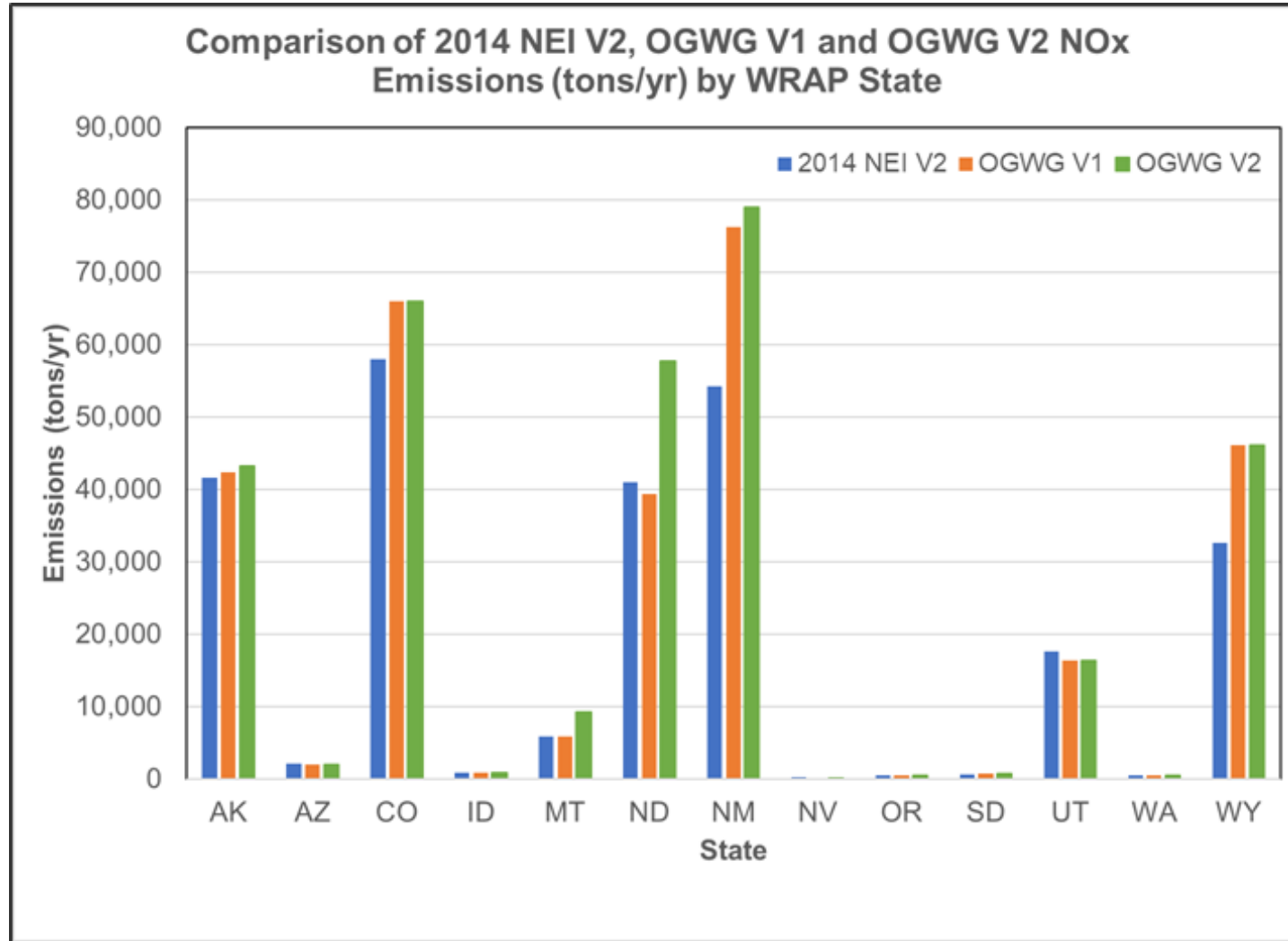
01 SURVEY- BASED BASELINE INVENTORY NOX CHANGES

Basin	Source Category	NOx (tpy)
Williston , ND	Hydraulic Fracturing Engines	18,369
Williston , ND	Artificial Lift Engines	11,894
Williston , ND	Generator Engines	2,848
Permian , NM	Artificial Lift Engines	2,800
Sweetgrass , MT	Nonpoint Compressor Engines	1,789
Williston , MT	Artificial Lift Engines	1,404
Williston , ND	Oil Tanks	823
Williston , MT	Hydraulic Fracturing Engines	743
Permian , NM	Hydraulic Fracturing Engines	742
Williston , MT	Generator Engines	437
Central Montana Uplift , MT	Nonpoint Compressor Engines	226
Permian , NM	Oil Tank Flaring	54
Williston , ND	Condensate Tanks	17
Big Horn , MT	Nonpoint Compressor Engines	9
Williston , MT	Condensate Tanks	1
Williston , ND	Drill Rigs	-15,610
Williston , MT	Drill Rigs	-1,258
Permian , NM	Drill Rigs	-943
Williston , MT	Oil Tanks	-18
Powder River , MT	Oil Tanks	-1
Sweetgrass , MT	Oil Tanks	0
Central Montana Uplift , MT	Oil Tanks	0
Sweetgrass , MT	Condensate Tanks	0
Total Change		24,325
Percent Change		8%

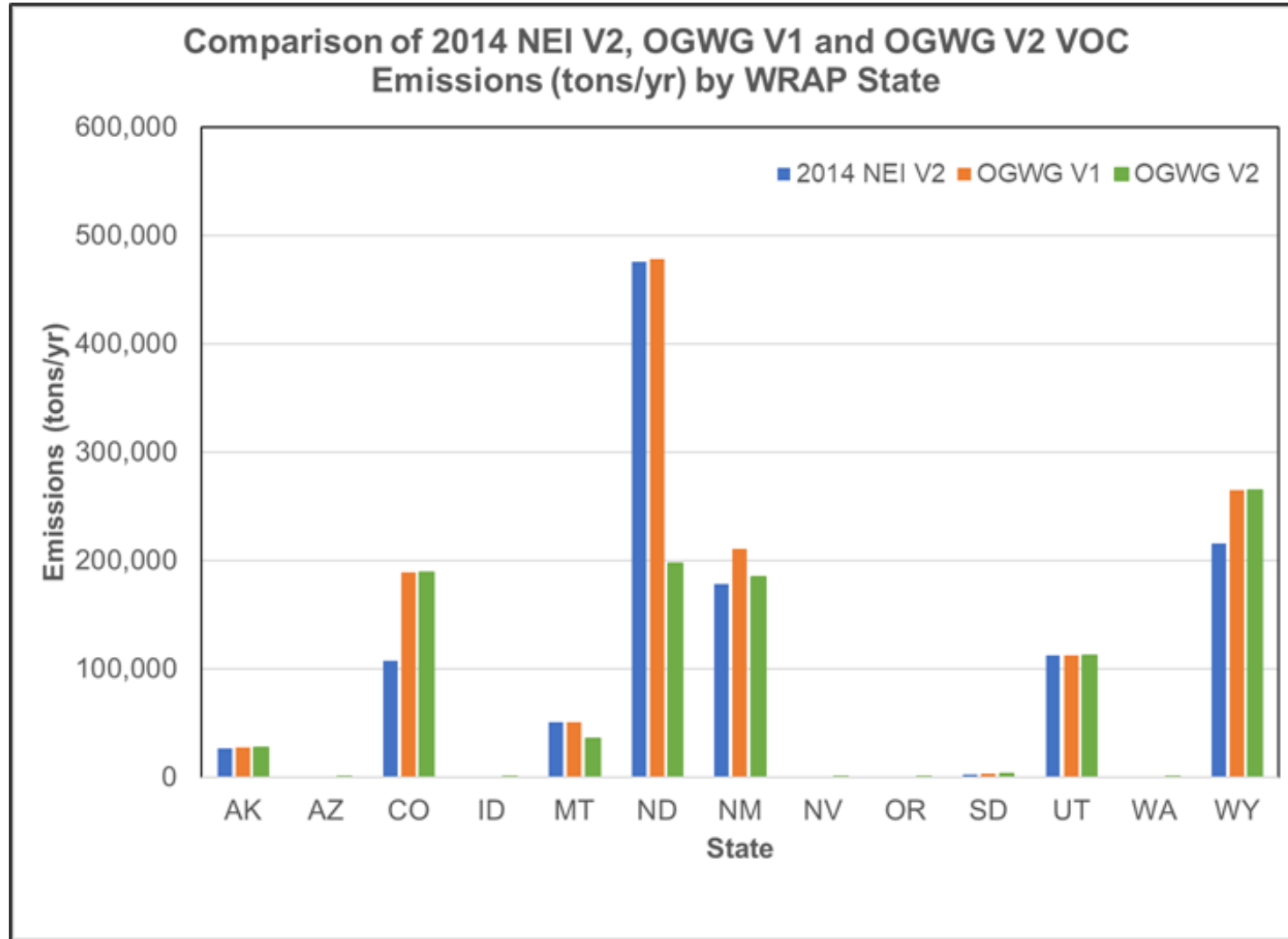
01 SURVEY- BASED BASELINE INVENTORY VOC CHANGES

Basin	Source Category	VOC (tpy)
Permian , NM	Artificial Lift Engines	2,224
Williston , ND	Hydraulic Fracturing Engines	1,450
Williston , ND	Artificial Lift Engines	957
Sweetgrass , MT	Oil Tanks	535
Williston , ND	Condensate Tanks	485
Williston , ND	Hydraulic Fracturing Engines	417
Permian , NM	Drill Rigs	325
Permian , NM	Hydraulic Fracturing Engines	175
Williston , MT	Artificial Lift Engines	139
Central Montana Uplift , MT	Oil Tanks	104
Williston , MT	Generator Engines	64
Williston , MT	Hydraulic Fracturing Engines	58
Sweetgrass , MT	Nonpoint Compressor Engines	33
Sweetgrass , MT	Condensate Tanks	32
Williston , MT	Condensate Tanks	20
Powder River , MT	Oil Tanks	5
Big Horn , MT	Nonpoint Compressor Engines	0
Williston , ND	Oil Tanks	-282,784
Permian , NM	Oil Tank	-28,623
Williston , MT	Oil Tanks	-16,190
Williston , ND	Drill Rigs	-1,033
Williston , MT	Drill Rigs	-81
Central Montana Uplift , MT	Nonpoint Compressor Engines	-2
Total Change		-321,690
Percent Change		-22%

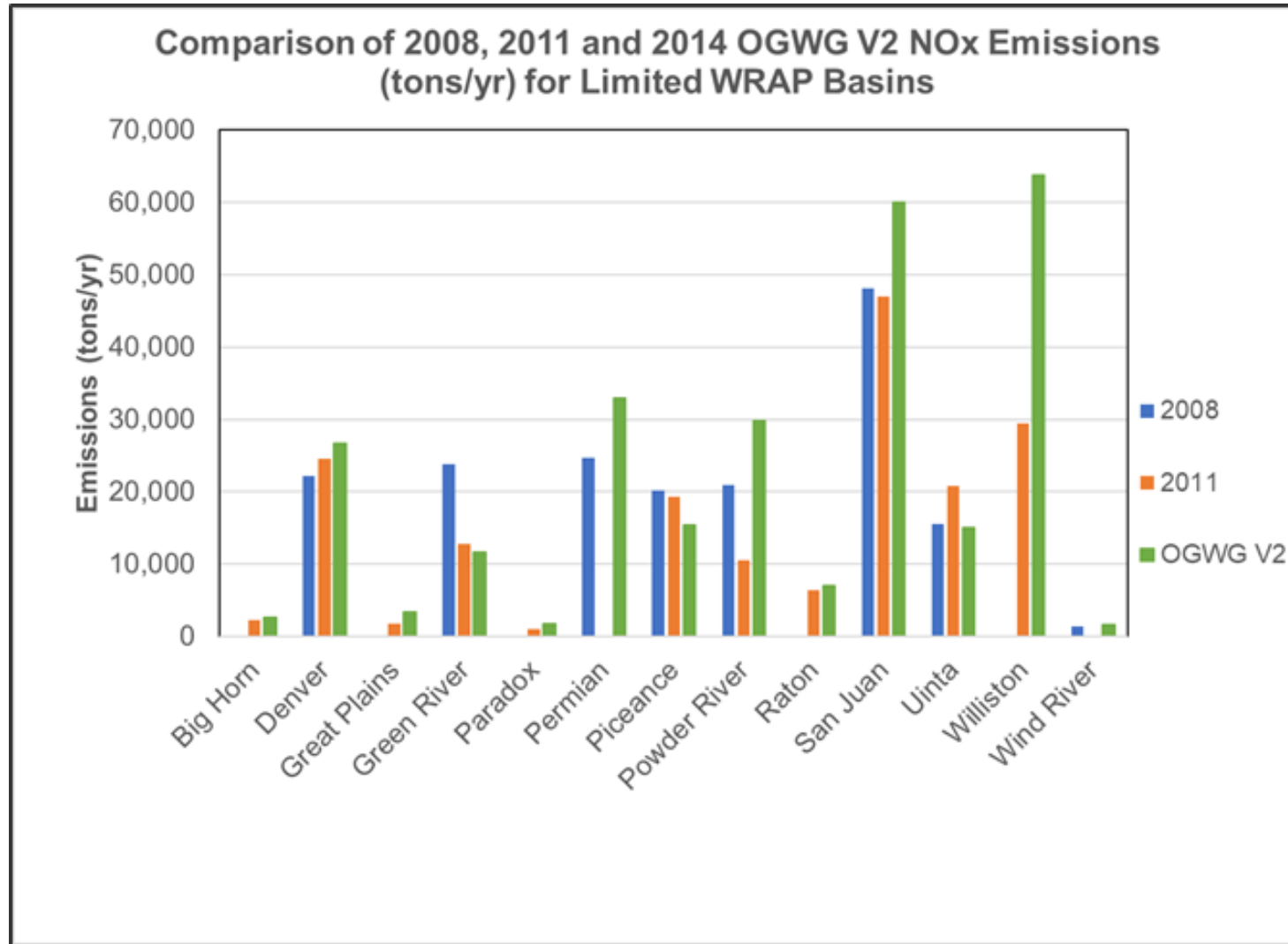
01 BASELINE INVENTORY - RESULTS



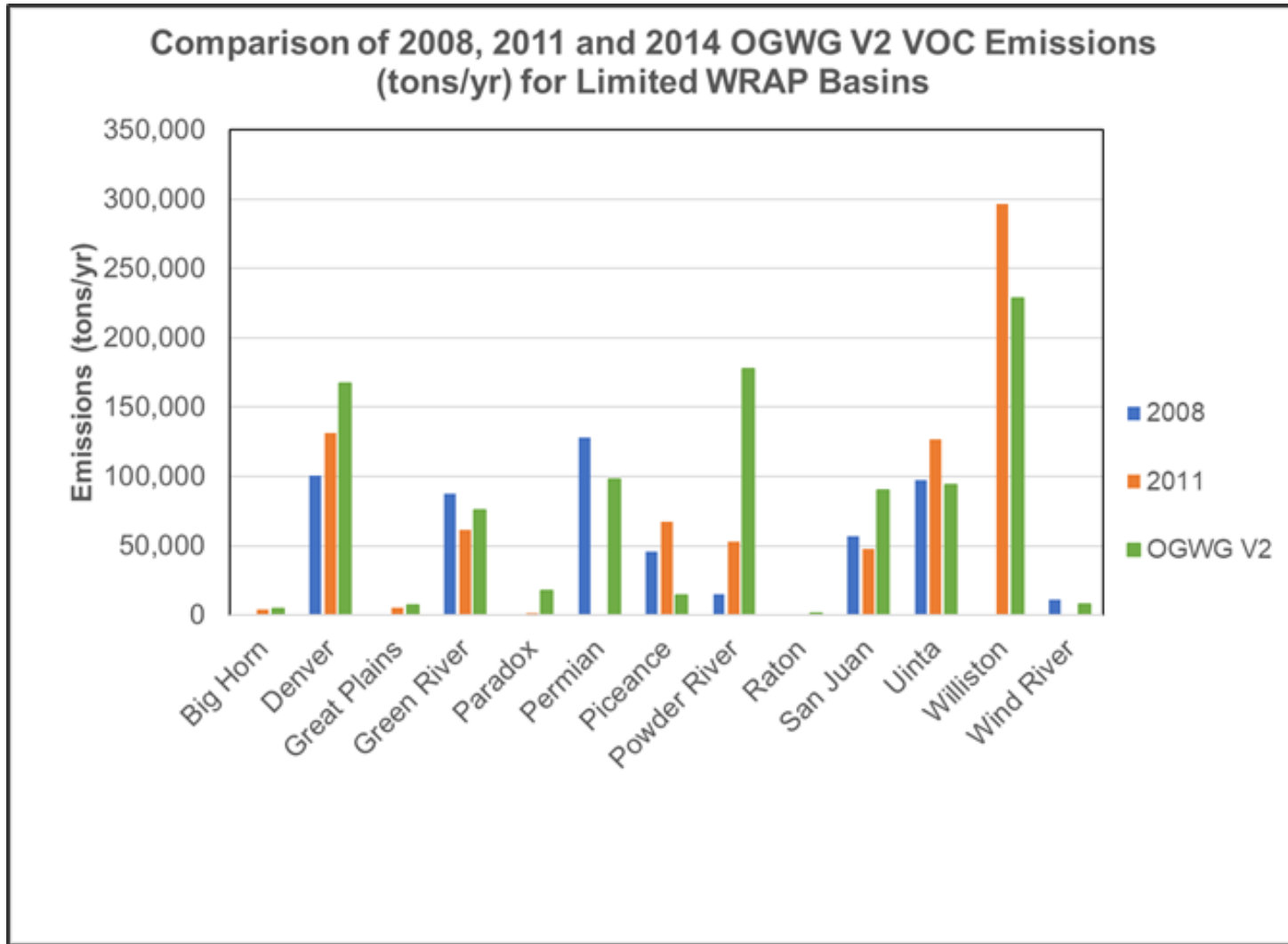
01 BASELINE INVENTORY - RESULTS



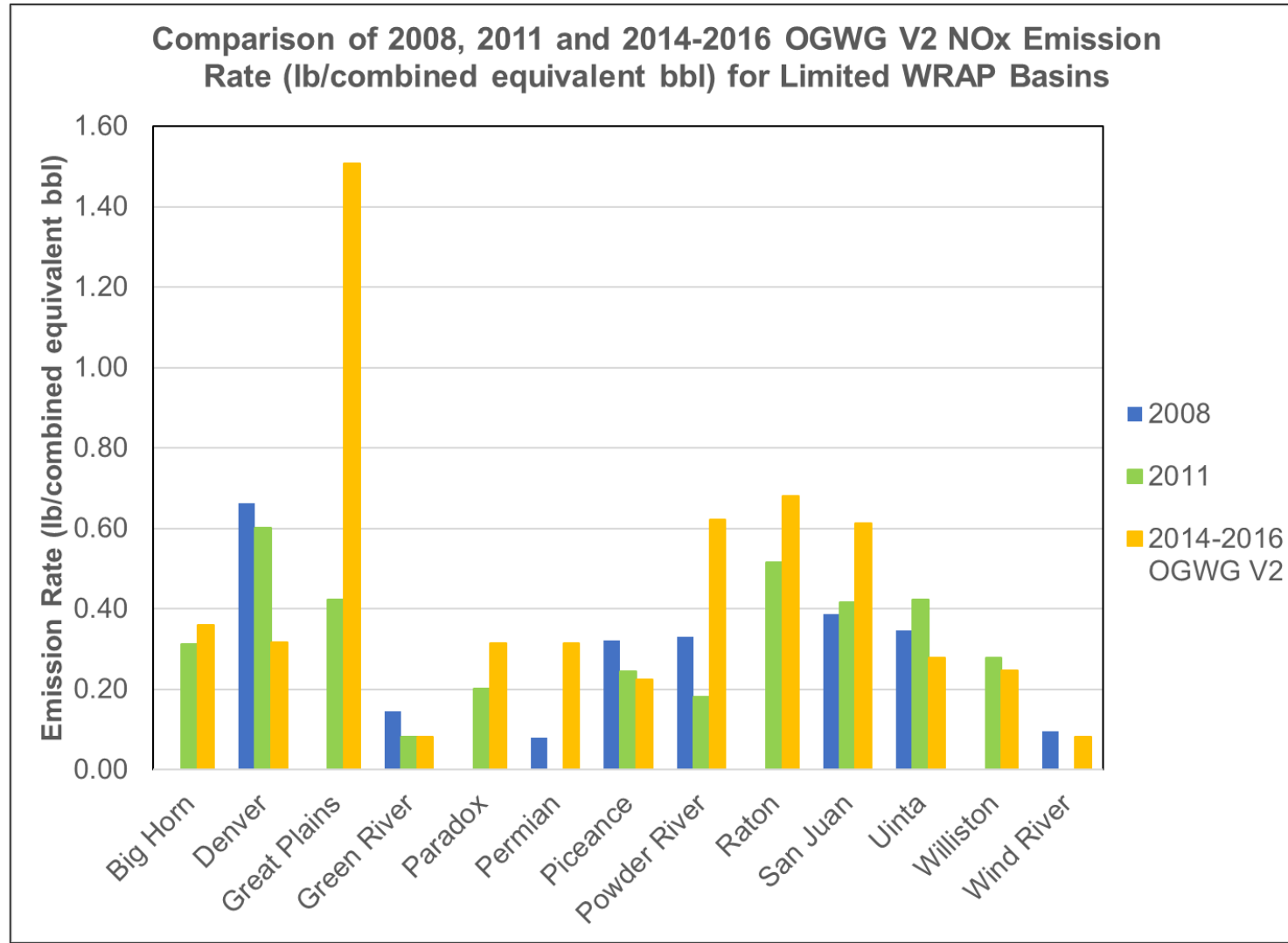
01 BASELINE INVENTORY - RESULTS



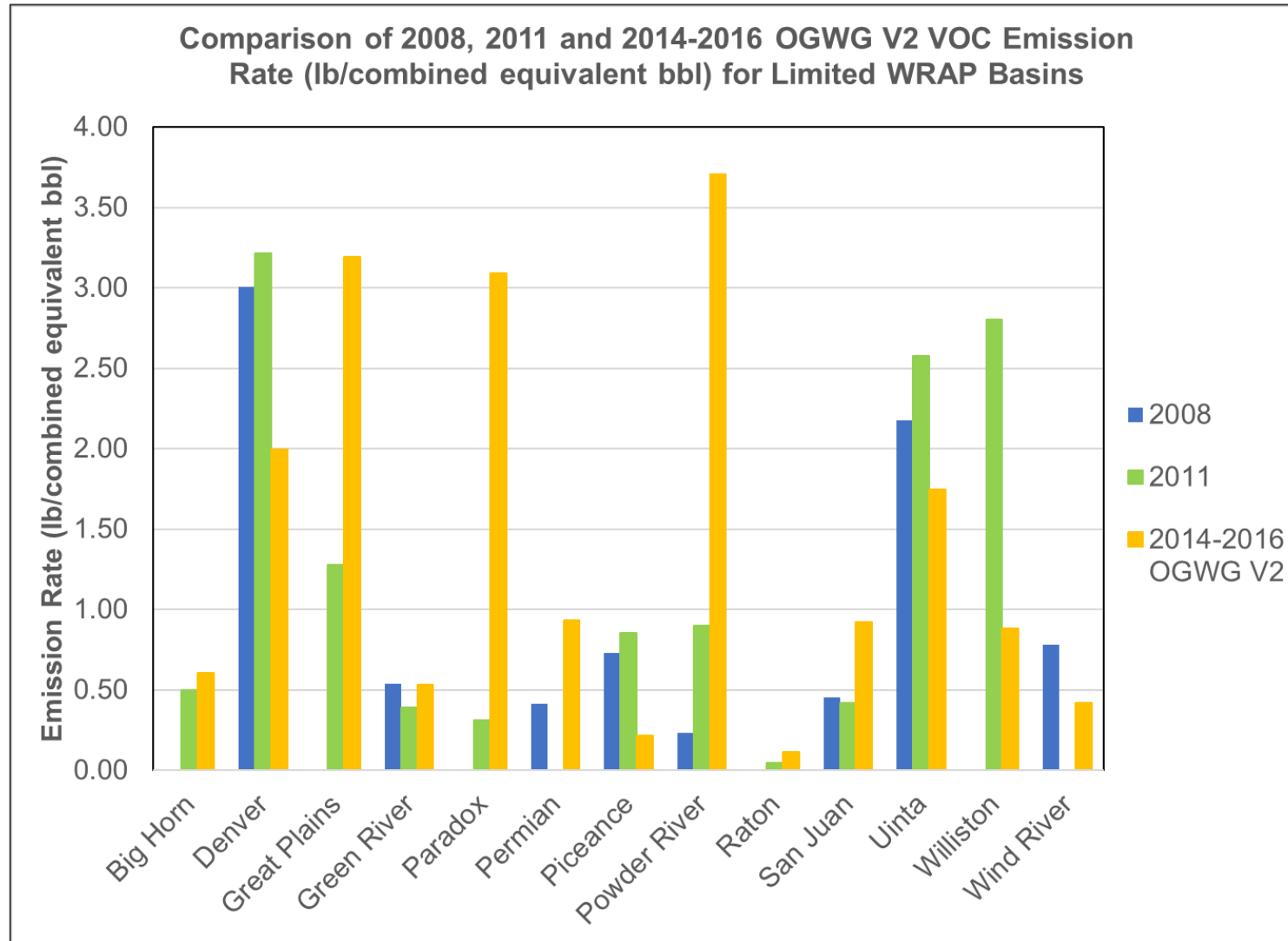
01 BASELINE INVENTORY - RESULTS



01 BASELINE INVENTORY - RESULTS



01 BASELINE INVENTORY - RESULTS



01 BASELINE INVENTORY – NEXT STEPS

- Comments on inventory due by 6/18
- Materials to review
 - Report (*comments on survey memo are addressed in the report*)
 - Spreadsheet data

01 BASELINE INVENTORY – EPA UPDATES

- WRAP co-chairs to communicate to EPA the availability of the baseline 2014-2016 inventory for use in EPA's 2016 Modeling Platform
- Survey input factors could be updated for the 2017 NEI EPA O&G Tool
 - Applicable to states for which EPA O&G Tool is used to estimate emissions for which updated survey-based input factors were developed: MT, ND, NM
 - Agencies should notify co-chairs if they would like their factors updated
 - Agencies that report nonpoint O&G emissions directly (e.g., CO, WY) likely not to need update

02 FORECAST SCENARIOS (OTB & OTW)

- Develop low, medium and high scenario emission inventories
 - Medium scenario for regional haze modeling
 - Low and high scenarios for planning purposes
- Medium scenario being finalized based on previous agency input
- Developing low and high scenario methodology
- *Agency involvement: review of inventory and related products later this summer*

03 FORECAST SCENARIOS (ADDITIONAL REASONABLE CONTROLS)

- Develop single scenario (likely medium OTB & OTW scenario) future year emission inventory
- Determining source categories that will be the focus of additional reasonable controls analysis
- Compiling survey results applicable to future year control scenarios
- *Agency involvement: review of survey results related to controls and focus source categories memo*

04 STATUS, SCHEDULE AND LOOKING AHEAD

- Task 1: Base Year Inventory
 - Complete: Baseline (version 2) inventory
 - In-progress: Agency review of baseline inventory and report, Ramboll compilation of representative gas compositions and controls from survey
 - Next steps: Finalize emission inventory based on comments in mid- to late-June, memo on gas compositions and controls from survey in early-July
- Task 2: Forecast 2028 Inventory (On-the-books controls)
 - Completed: Draft medium scenarios, agency comment
 - In-progress: Low and high scenario forecast methods
 - Next steps: Develop low and high scenario forecast methods
- Task 3: Forecast 2028 Inventory (Additional reasonable controls)
 - In-progress: Identification of sources to focus on for additional controls
 - Next steps: Memorandum on sources to focus on for additional controls, memo on surveys responses related to controls in early-July
- Not yet started
 - Task 4: O&G Program and Emission Management Review

04 STATUS, SCHEDULE & LOOKING AHEAD

Activity	2019											
	Jun			Jul			Aug			Fall		Winter
Task 1: Base Year Inventory & Survey												
Ramboll delivers draft version 2 baseline inventory and report	■											
WRAP OGWG comments on draft baseline inventory (v2) and report		■	■									
Ramboll delivers final version 2 baseline inventory and report			■									
Ramboll delivers memo with representative gas composition profiles				■								
Task 2: Future Year Inventory: On-the-books and On-the-way (OTB and OTW) Controls												
O&G Activity forecast scenarios	■	■	■	■	■	■						
Memo on survey compilation of emission controls	■	■	■	■	■	■						
OTB and OTW emission controls	■	■	■	■	■	■	■					
OTB and OTW controls future year inventory and report					■	■	■	■	■			
WRAP OGWG comments on draft future year inventory and report									■	■		
Ramboll delivers final version 2 baseline inventory and report										■		
Task 3: Future Year Inventory: Additional Reasonable Controls												
Identify Additional Reasonable Controls for Oil and Gas Sources												
Additional Reasonable controls future year inventory and report												
Task 4: O&G Programs and Emission Management												
Identification and Review of Member Agency Oil & Gas Programs												

■ State agency / operator activity
■ Ramboll Activity



QUESTIONS?